

Mr. WARNER. Mr. President, I thank my colleague for those kind remarks. I return the same.

Mr. BYRD. I thank the Senator.

SENATOR PAT MOYNIHAN
PRESIDING

Mr. BYRD. Mr. President, I call attention to something that I have not seen in the Senate, now, in over 5 years. It has been 5 years since I saw a Democrat in that chair. But who better than the distinguished senior Senator from New York, PAT MOYNIHAN, to grace that chair. This is truly a record day. We will be celebrating Columbus Day on next Tuesday, but I am ready to start now because there sits Senator MOYNIHAN—in the chair.

Let me comment just a little further on that. Imagine our good Republican friends allowing a Democrat to sit in the Presiding Officer's chair. They trust him. I think it was with great grace that JESSE HELMS, the senior Senator from North Carolina, the State in which I was born and the State whose motto is "to be rather than to seem," that he chose PAT MOYNIHAN to preside over these last few minutes.

COLUMBUS DAY 1999

Mr. BYRD. Mr. President, many Americans are preparing to enjoy a three-day weekend. Most could tell you that their holiday was to honor Christopher Columbus, and a fair number might be able to recite "in fourteen-hundred and ninety-two, Columbus sailed the ocean blue" on his way to discovering America. An even smaller number might be able to recount the ongoing controversy over just where along the continent Columbus first came to land. But few, I hazard to guess, can truly appreciate the magnitude of his great daring, though we all appreciate the bounty of his great mistake. Few may even realize that it is next Tuesday, October 12, that is the true anniversary of Christopher Columbus' discovery of the New World, some 507 years ago.

Oh, Columbus, that scion of Eratosthenes, that son of Ptolemy, that kin in spirit to Marco Polo, what fascinating history he built upon when first he set out on his great journey. Although he was surely a brave man, Columbus did not sail blindly off to the west not knowing whether he would drop off the edge, as some children's books might lead one to believe. No, Columbus had the wisdom of the ancients to guide him and the lure of another adventurer's tales to entice him. He had history, mathematics, and science as his guides and greed as his goad to whip him along his journey.

Long before Columbus' day, Eratosthenes, the ancient Greek scholar commonly called the Father of Geography, had determined with amazing accuracy the circumference of the earth. Born around 276 B.C. at a Greek colony in Cyrene, Libya, Eratosthenes

was educated at the academies in Athens and was appointed to run the Great Library at Alexandria, in what is now Egypt, in 240 B.C. During his time there, he wrote a comprehensive volume about the world, called "Geography," the first known coining of that word. Eratosthenes used known distances and geometry on a grand scale to calculate the circumference of the earth to within 100 miles of its true girth at the equator, 24,901 miles. His work was still available in Columbus' time.

A later Greek geographer, Posidonius, felt that Eratosthenes' circumference was too large and recalculated the figure at 18,000 miles, some 7,000 miles too short. What is interesting about this fact is that Christopher Columbus deliberately used Posidonius's shorter figure to convince his backers that he could quickly reach Asia by sailing west from Europe. It may not have been the first time that financial backers have been duped using doctored numbers, but I am confident that it has not been the last!

So, we know that Columbus knew the earth was round—no fear of falling off the edge—and that it was between 18,000 or 25,000 miles around at its midpoint—still a very long journey in either case for ships the size that Columbus sailed on. But what led him to think sailing west from Europe to Asia was feasible? For that, Columbus would have looked to a Roman scholar, Claudius Ptolemaeus, more commonly known as Ptolemy. Like Eratosthenes before him, Ptolemy, who lived from approximately 90 to 170 A.D., worked in the Great Library at Alexandria, from 127 to 150 A.D. Perhaps inspired by Eratosthenes' work, Ptolemy also published a scholarly work called "Geography," in addition to a volume on astronomy and geometry, and a work on astrology. Ptolemy's "Geography" consisted of eight volumes, and it introduced critical elements of map-making to the world. Ptolemy advanced the efforts of mapmakers in representing the spherical world on flat paper, in what are known as map projections. He is responsible for the now universal practice of placing north at the top of the map. Ptolemy also invented latitude and longitude—that is, he created a grid system to lay over the globe in order to chart locations. His volumes charted some eight thousand places around the world he knew, revealing for future generations a geographic knowledge of the Roman empire of the second century.

Like many ancient works, Ptolemy's "Geography" was lost for over a thousand years after it was first published. But in the early fifteenth century, his work was rediscovered, translated into Latin, and published in multiple editions. It would have been readily available to Christopher Columbus, who was influenced both by Ptolemy's erroneous shorter circumference of the earth and by his depiction of the Indian Ocean as a large inland sea, bordered

on the south by beguiling Terra Incognita, the unknown land. I think there can be few things more mysterious, more alluring, than an old map with large blank land masses labeled simply "terra incognita" or, on some medieval maps, by the phrase "here be dragons."

Marco Polo's fantastic tales of Cathay and the exotic spices and goods that he brought back to Italy sparked a huge appetite for such things, which only increased when the returning Crusaders opened the overland trade routes between Europe and the Orient. However, when Constantinople fell to the Turks in 1453, two years after Columbus was born, the overland spice routes between Europe and Asia were closed off. Every power in Europe was eager—eager—to reopen the very profitable trade, by land or by some unknown sea route. Seeking an eastern sea route, Bartholomeu Dias reached the Cape of Good Hope in Africa in 1488, and Vasco da Gama reached India in 1498, but the eastern voyages were long and perilous. Anyone who could find a shorter route would make a fortune for himself and his backers.

Columbus himself was born in Genoa in 1451 to Susanna Fontanarossa and Domenico Colombo, the eldest of their five children. Growing up in a major port city, Columbus would have learned a lot about the sea, in addition to hearing and reading the tales of riches beyond the horizon.

True to his adventurous inclinations, Christopher Columbus took to the sea. After an attack by the French at sea in the Strait of Gibraltar in 1476, the ship Columbus was sailing on was sunk, forcing him to swim to land. He was able to grab an oar and swim to land in Portugal. Three years later, he married into the Portuguese aristocracy when he wed Felipa Perestrelo. The marriage resulted in one son, Diego, and an entrée into the financial backing of the Portuguese and Spanish nobility. In the simple history of Christopher Columbus that we may recall from elementary school, which was a long time ago for me, it was King Ferdinand and Queen Isabella of Spain who finally provided the ships, the fabled *Niña*, *Pinta*, and *Santa Maria*, in which Columbus set off on August 3, 1492, to discover the western shortcut to the fabled wealth of the Indies. At roughly 2 a.m. on October 12, 1492, after 71 grueling days at sea trusting in God, Eratosthenes, Ptolemy, and Polo, Columbus made landfall in what he believed was the Indies.

Columbus found no gold, silks, spices or valuable wood in his misnamed Indies, but he did bring tobacco back to Europe. After establishing a fort called Natividad, built of timbers from the wrecked *Santa Maria*, Columbus returned to Spain.

Columbus made three other journeys to his new-found land, which he named Hispaniola. His second voyage left Spain in September 1493 and returned to Spain in 1496 after establishing a more substantial colony. His third voyage led to his return to Spain in